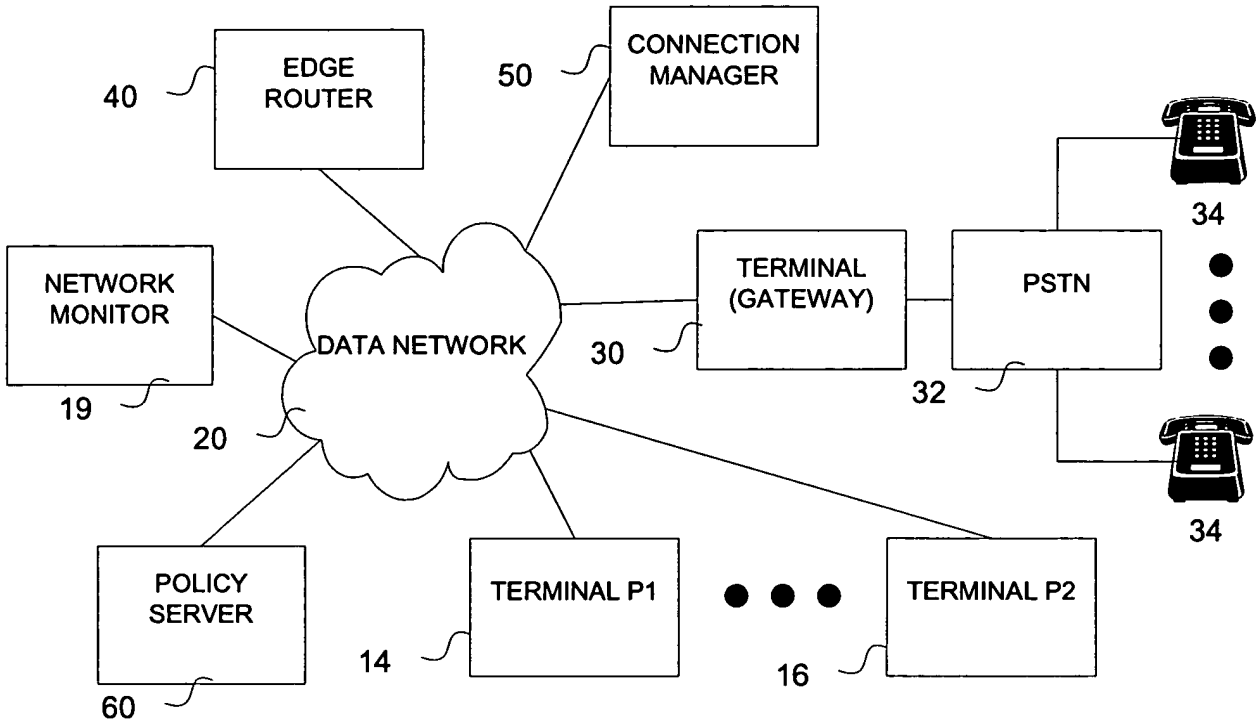

EDGE ROUTER
40
CONNECTION MANAGER
50
NETWORK MONITOR
19
DATA NETWORK
20
TERMINAL (GATEWAY)
30
PSTN
32
34
34
POLICY SERVER
60
TERMINAL P1
14
TERMINAL P2
16

FIGURE 1

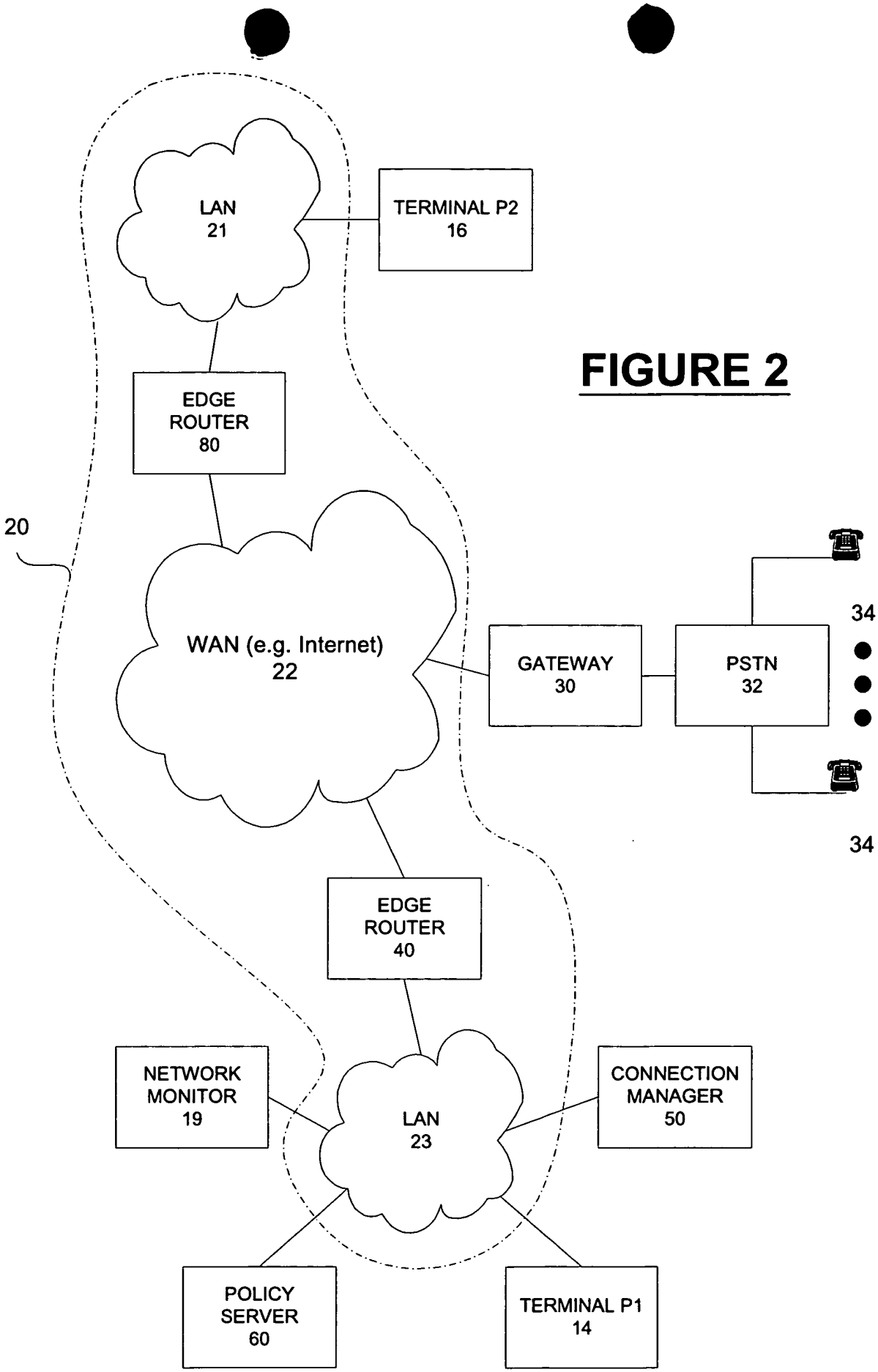
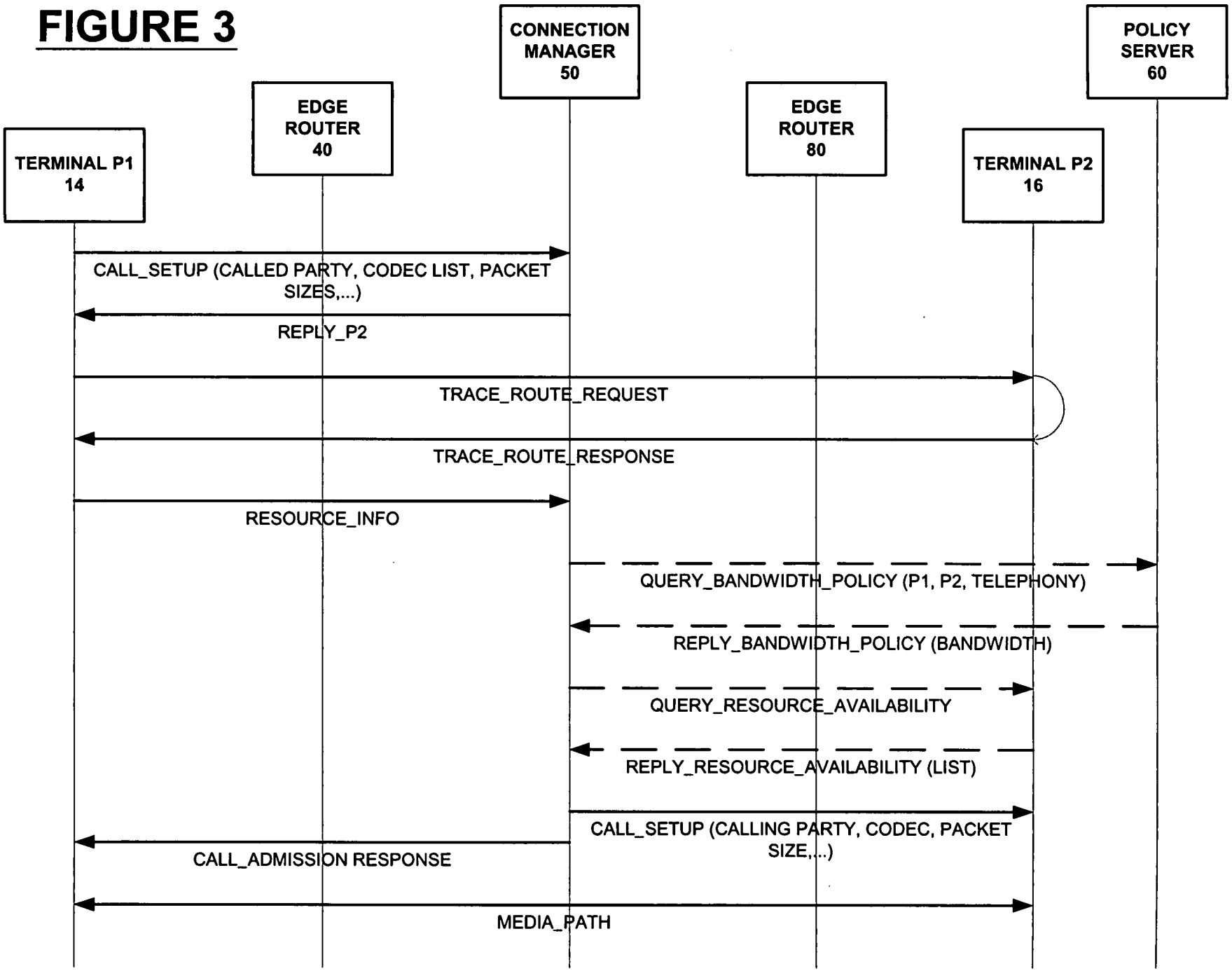

LAN
21
TERMINAL P2
16
EDGE
ROUTER
80
20
WAN (e.g. Internet)
22
GATEWAY
30
PSTN
32
34
34
EDGE
ROUTER
40
NETWORK
MONITOR
19
LAN
23
CONNECTION
MANAGER
50
POLICY
SERVER
60
TERMINAL P1
14

FIGURE 2

09535D 252650

FIGURE 3



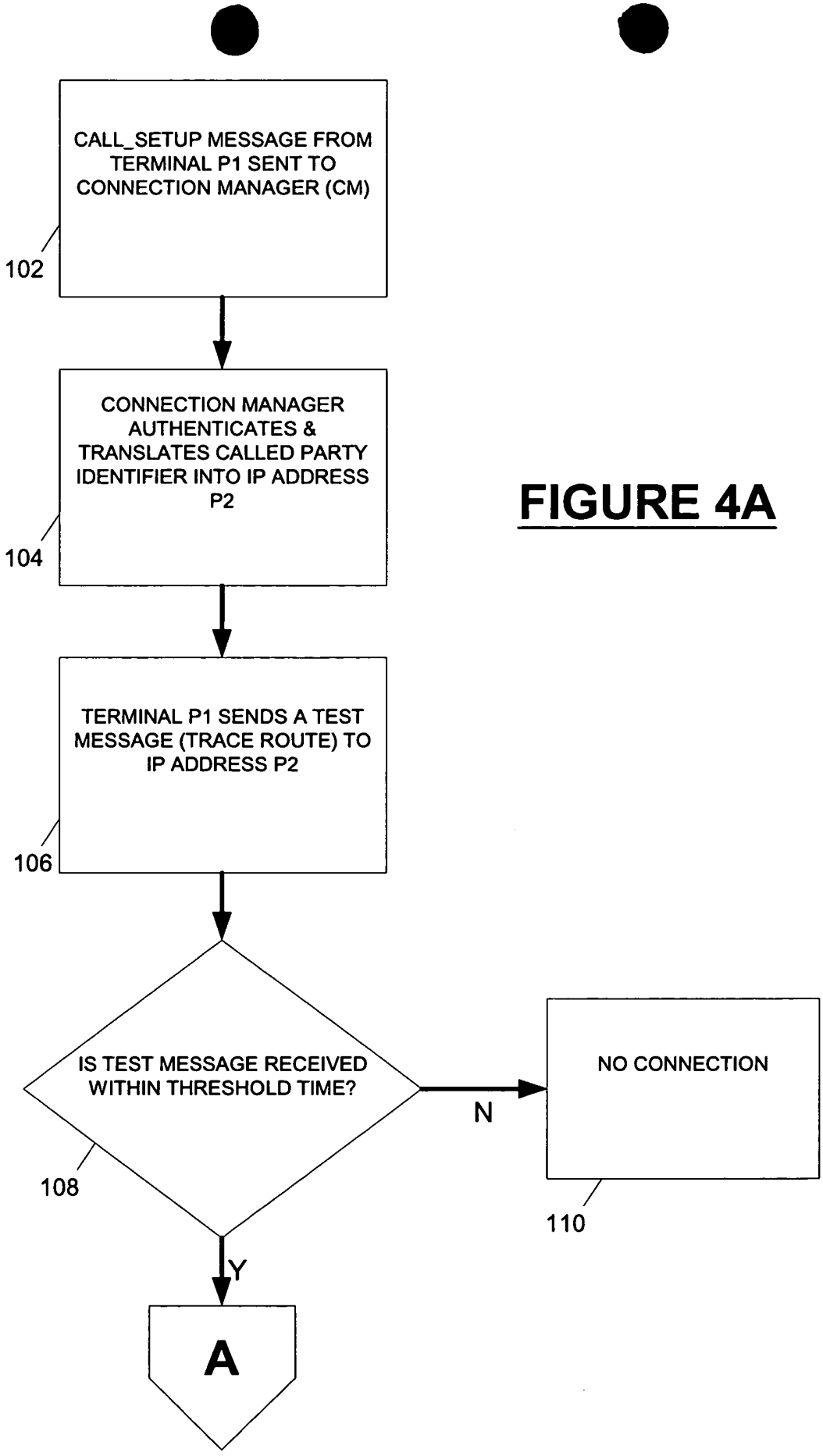

CALL_SETUP MESSAGE FROM TERMINAL P1 SENT TO CONNECTION MANAGER (CM)
102
CONNECTION MANAGER AUTHENTICATES & TRANSLATES CALLED PARTY IDENTIFIER INTO IP ADDRESS P2
104
TERMINAL P1 SENDS A TEST MESSAGE (TRACE ROUTE) TO IP ADDRESS P2
106
IS TEST MESSAGE RECEIVED WITHIN THRESHOLD TIME?
108
N
NO CONNECTION
110
Y
A

FIGURE 4A

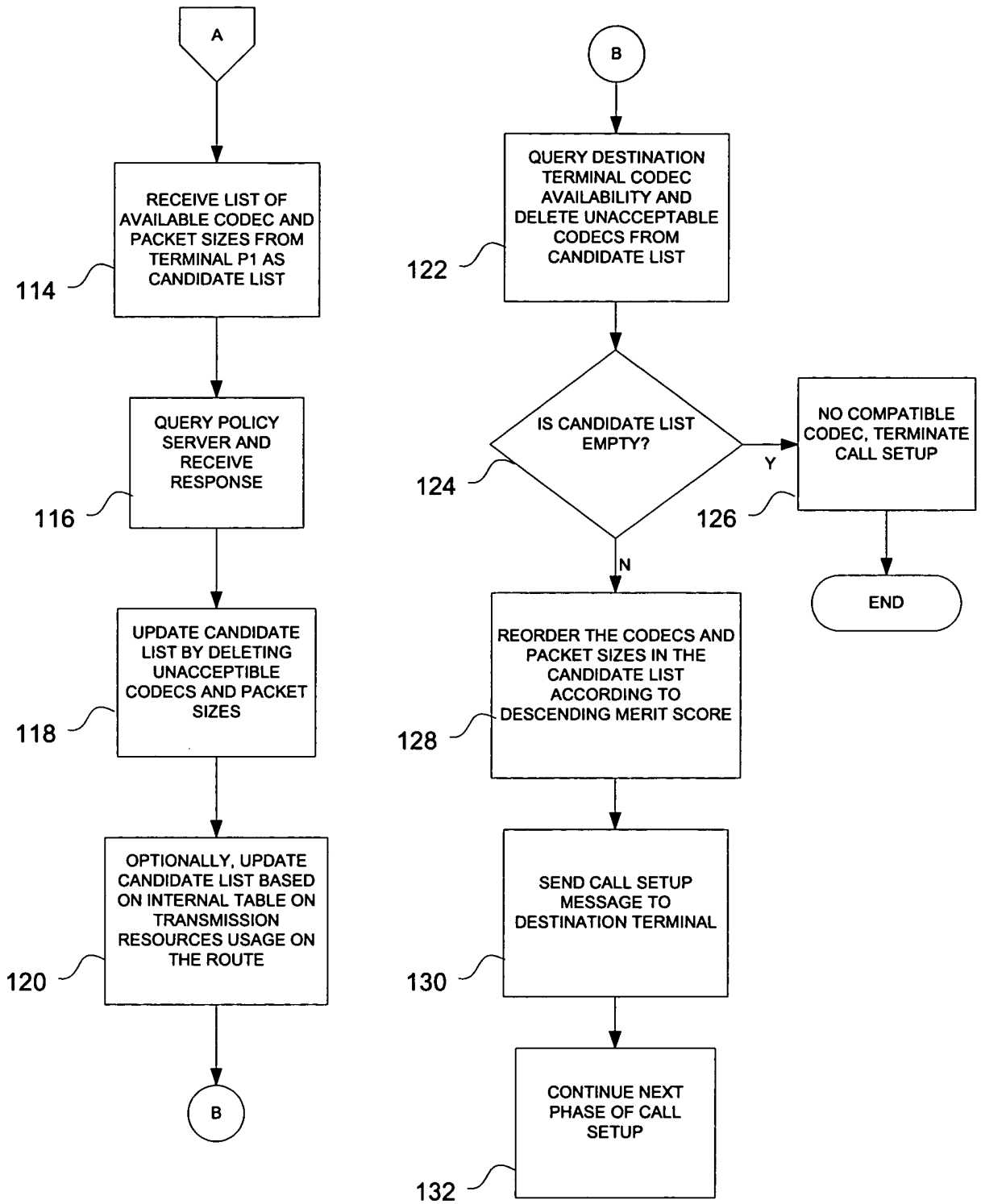
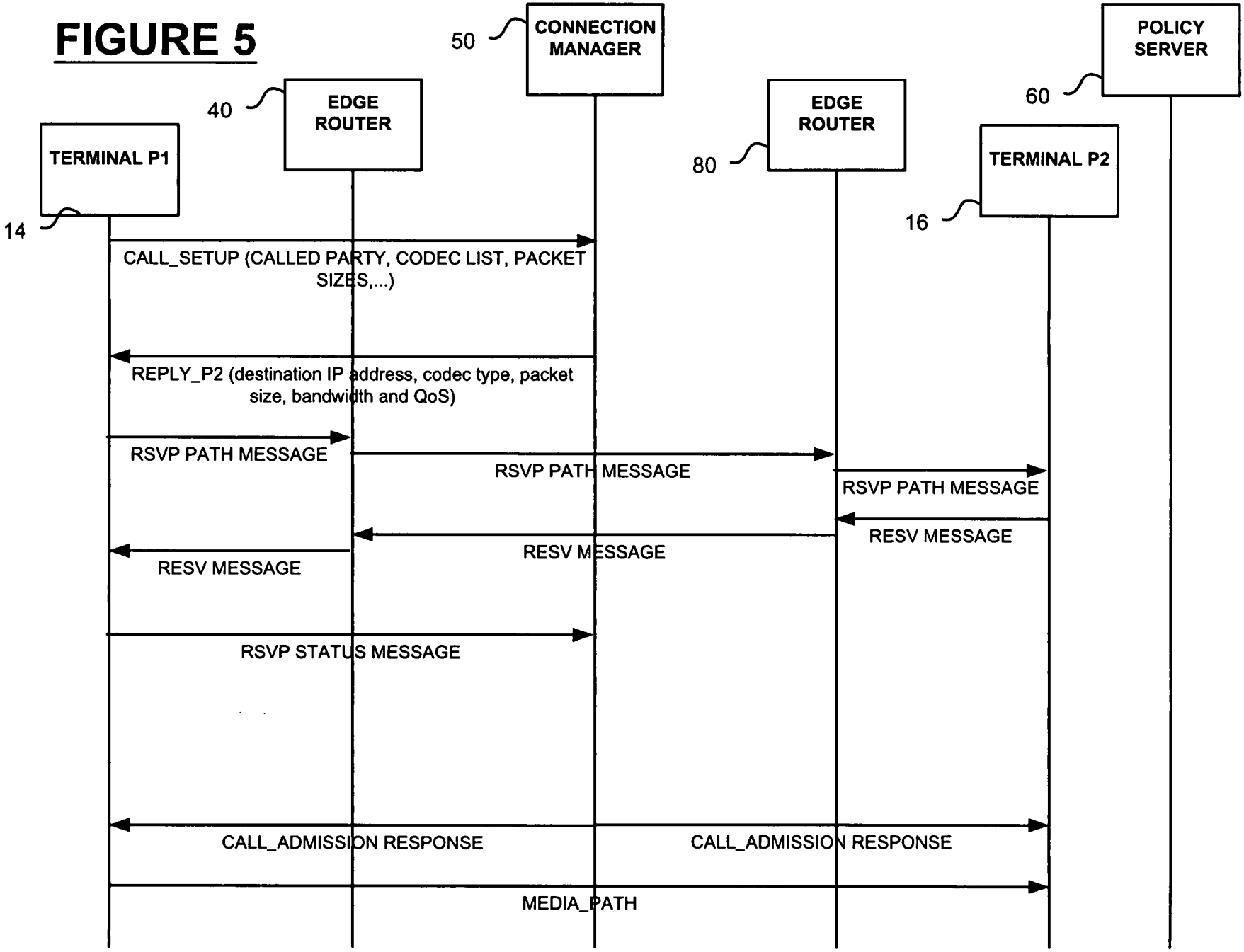

A
RECEIVE LIST OF AVAILABLE CODEC AND PACKET SIZES FROM TERMINAL P1 AS CANDIDATE LIST
114
QUERY POLICY SERVER AND RECEIVE RESPONSE
116
UPDATE CANDIDATE LIST BY DELETING UNACCEPTIBLE CODECS AND PACKET SIZES
118
OPTIONALLY, UPDATE CANDIDATE LIST BASED ON INTERNAL TABLE ON TRANSMISSION RESOURCES USAGE ON THE ROUTE
120
B
B
QUERY DESTINATION TERMINAL CODEC AVAILABILITY AND DELETE UNACCEPTABLE CODECS FROM CANDIDATE LIST
122
IS CANDIDATE LIST EMPTY?
124
Y
NO COMPATIBLE CODEC, TERMINATE CALL SETUP
126
END
N
REORDER THE CODECS AND PACKET SIZES IN THE CANDIDATE LIST ACCORDING TO DESCENDING MERIT SCORE
128
SEND CALL SETUP MESSAGE TO DESTINATION TERMINAL
130
CONTINUE NEXT PHASE OF CALL SETUP
132

FIGURE 4B

09239D 252250

FIGURE 5



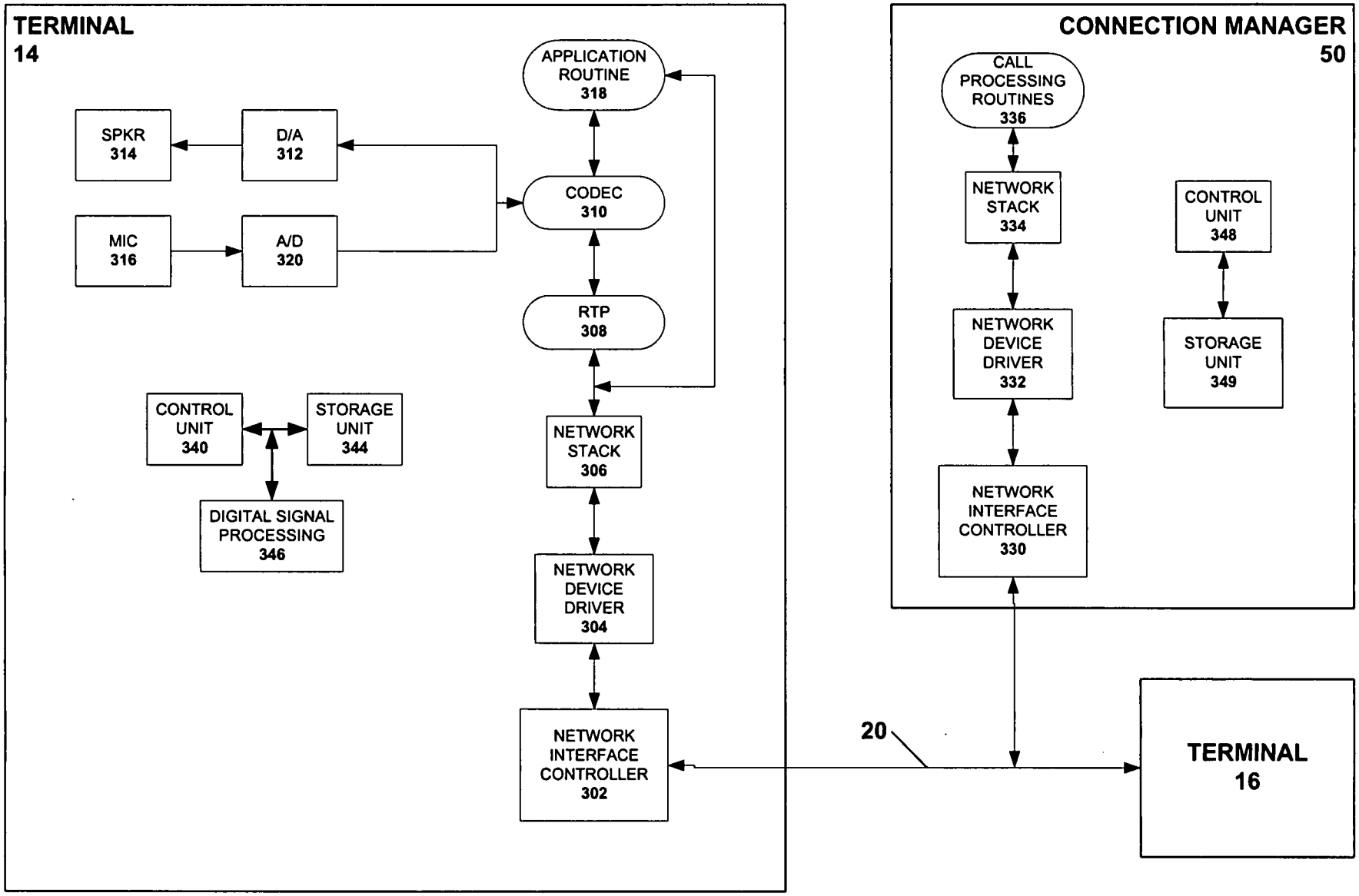

TERMINAL
14
APPLICATION ROUTINE 318
SPKR 314
D/A 312
CODEC 310
MIC 316
A/D 320
RTP 308
CONTROL UNIT 340
STORAGE UNIT 344
DIGITAL SIGNAL PROCESSING 346
NETWORK STACK 306
NETWORK DEVICE DRIVER 304
NETWORK INTERFACE CONTROLLER 302
CONNECTION MANAGER
50
CALL PROCESSING ROUTINES 336
NETWORK STACK 334
CONTROL UNIT 348
NETWORK DEVICE DRIVER 332
STORAGE UNIT 349
NETWORK INTERFACE CONTROLLER 330
20
TERMINAL
16

FIGURE 6

FIGURE 7

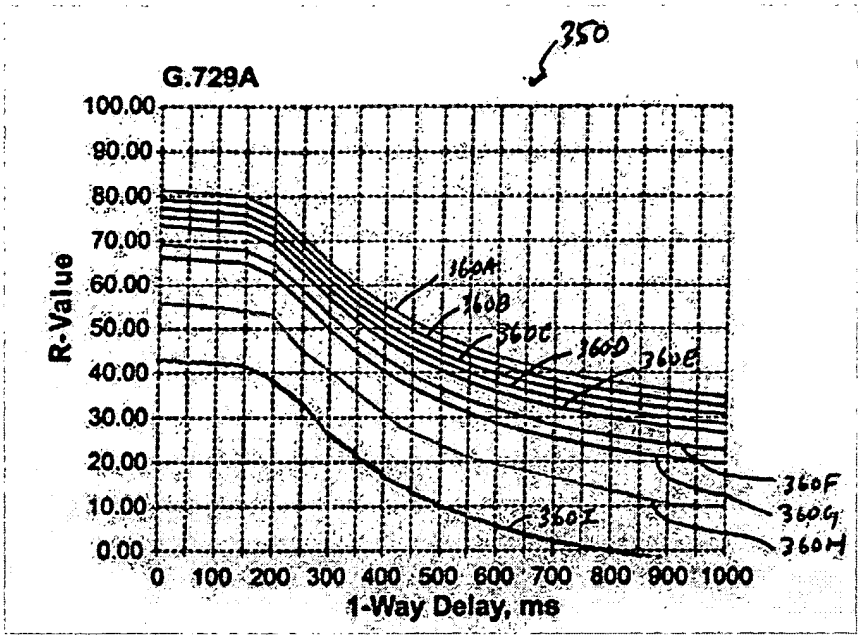
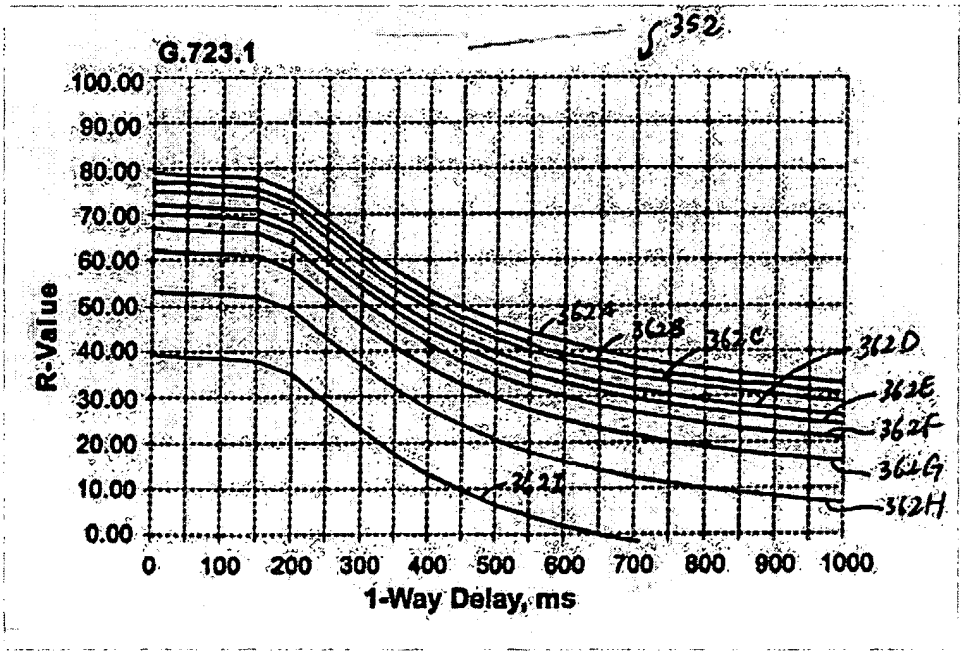


FIGURE 8



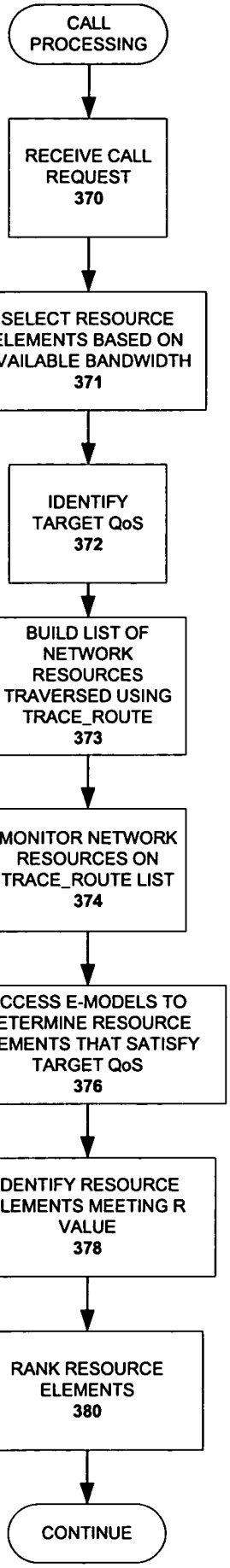

CALL PROCESSING
RECEIVE CALL REQUEST 370
SELECT RESOURCE ELEMENTS BASED ON AVAILABLE BANDWIDTH 371
IDENTIFY TARGET QoS 372
BUILD LIST OF NETWORK RESOURCES TRAVERSED USING TRACE_ROUTE 373
MONITOR NETWORK RESOURCES ON TRACE_ROUTE LIST 374
ACCESS E-MODELS TO DETERMINE RESOURCE ELEMENTS THAT SATISFY TARGET QoS 376
IDENTIFY RESOURCE ELEMENTS MEETING R VALUE 378
RANK RESOURCE ELEMENTS 380
CONTINUE

FIGURE 9

09623601 "2621259

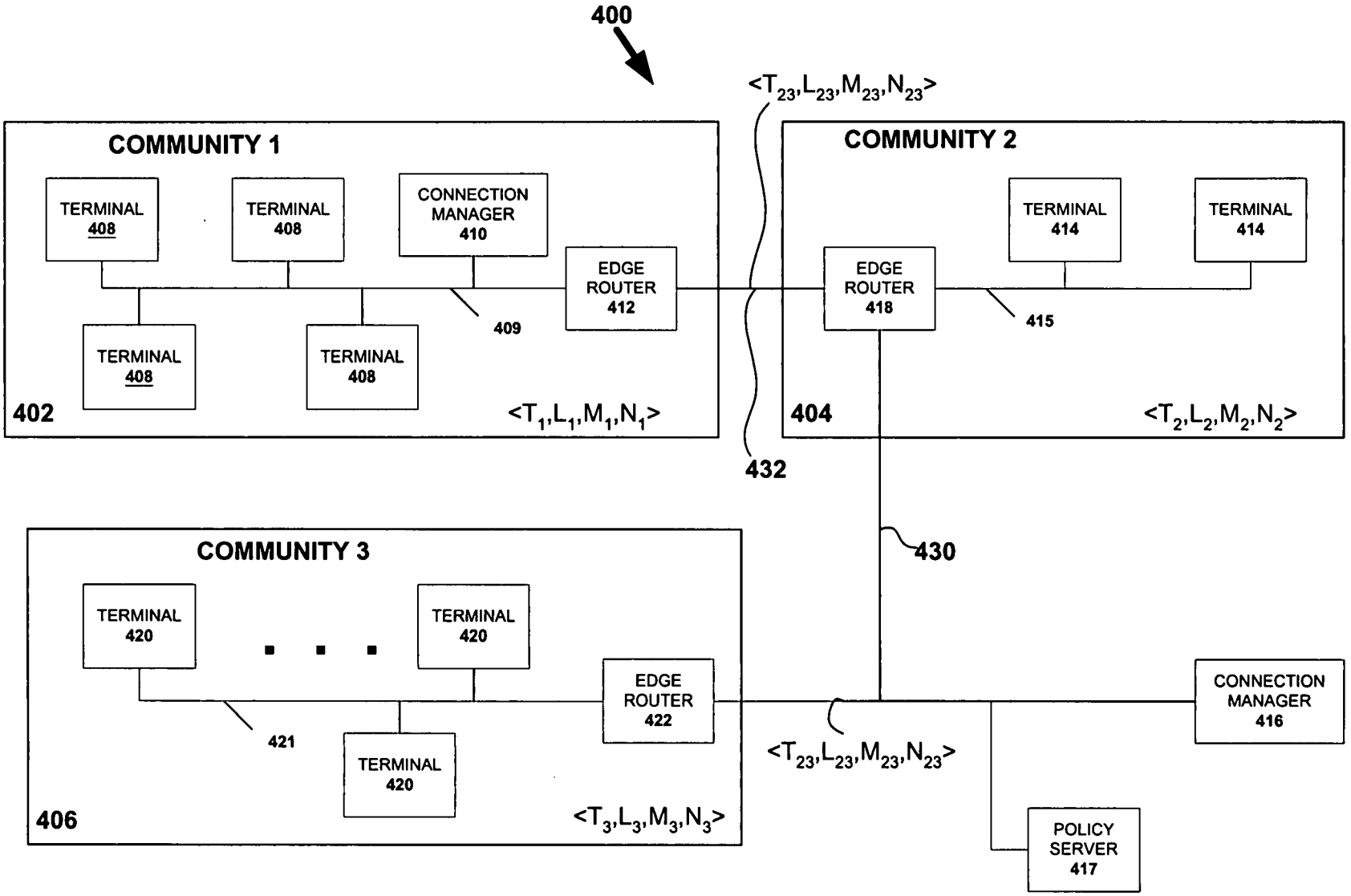


FIGURE 10

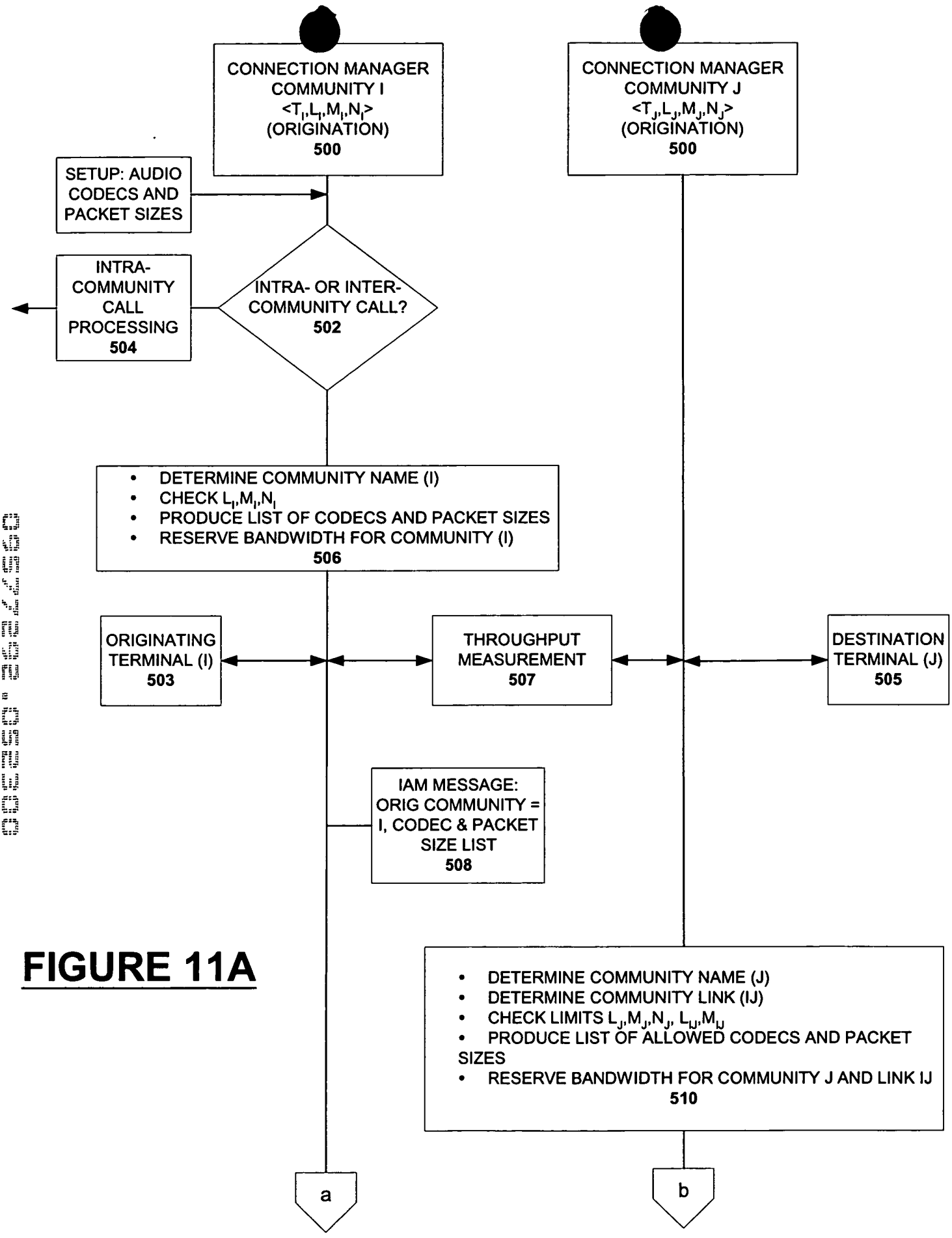
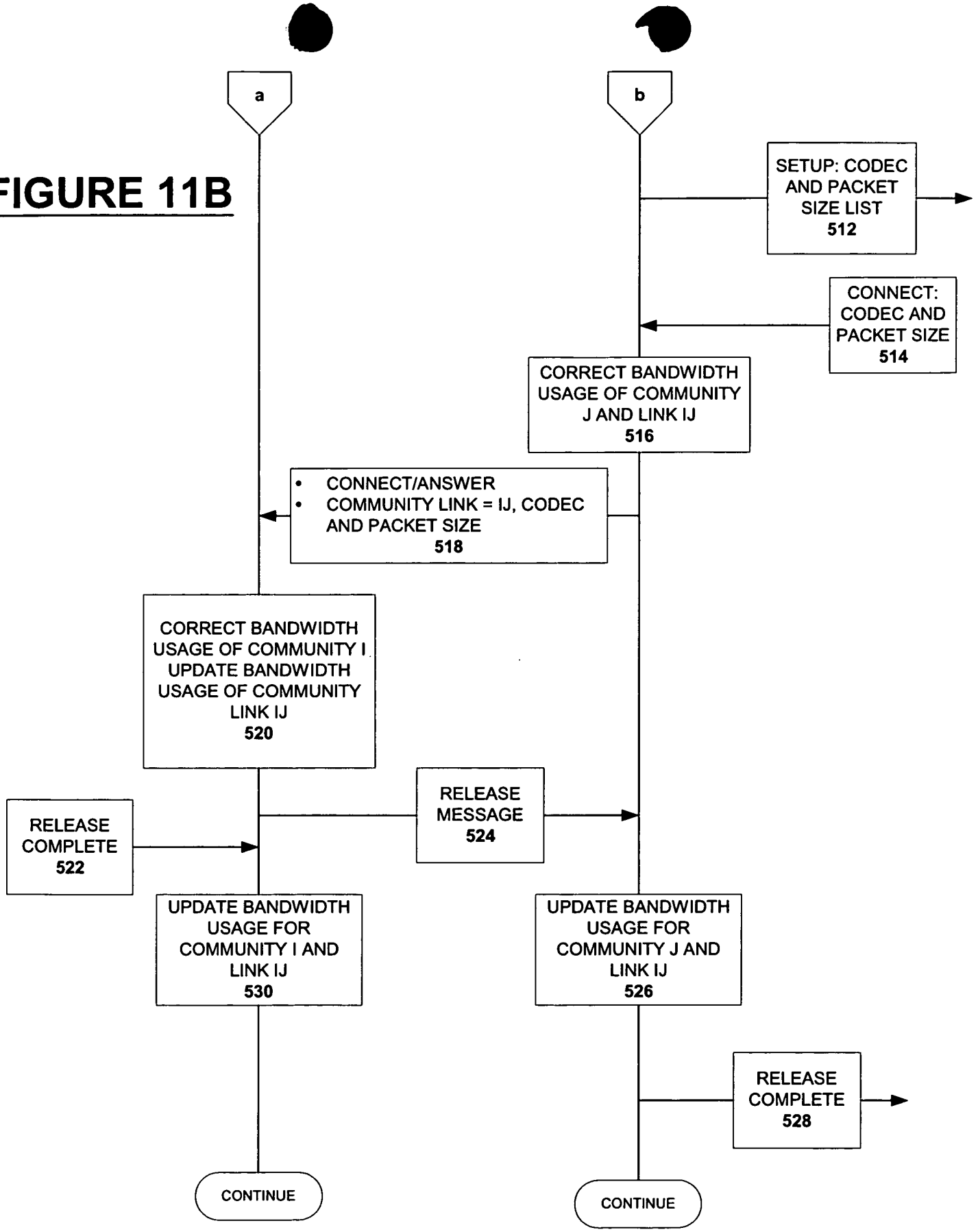

CONNECTION MANAGER COMMUNITY I <T_I,L_I,M_I,N_I> (ORIGINATION) 500
CONNECTION MANAGER COMMUNITY J <T_J,L_J,M_J,N_J> (ORIGINATION) 500
SETUP: AUDIO CODECS AND PACKET SIZES
INTRA- COMMUNITY CALL PROCESSING 504
INTRA- OR INTER- COMMUNITY CALL? 502
• DETERMINE COMMUNITY NAME (I)
• CHECK L_I,M_I,N_I
• PRODUCE LIST OF CODECS AND PACKET SIZES
• RESERVE BANDWIDTH FOR COMMUNITY (I) 506
ORIGINATING TERMINAL (I) 503
THROUGHPUT MEASUREMENT 507
DESTINATION TERMINAL (J) 505
IAM MESSAGE: ORIG COMMUNITY = I, CODEC & PACKET SIZE LIST 508
• DETERMINE COMMUNITY NAME (J)
• DETERMINE COMMUNITY LINK (IJ)
• CHECK LIMITS L_J,M_J,N_J, L_IJ,M_IJ
• PRODUCE LIST OF ALLOWED CODECS AND PACKET SIZES
• RESERVE BANDWIDTH FOR COMMUNITY J AND LINK IJ 510
a
b

FIGURE 11A

FIGURE 11B


a
b
SETUP: CODEC AND PACKET SIZE LIST 512
CONNECT: CODEC AND PACKET SIZE 514
CORRECT BANDWIDTH USAGE OF COMMUNITY J AND LINK IJ 516
• CONNECT/ANSWER
• COMMUNITY LINK = IJ, CODEC AND PACKET SIZE 518
CORRECT BANDWIDTH USAGE OF COMMUNITY I UPDATE BANDWIDTH USAGE OF COMMUNITY LINK IJ 520
RELEASE MESSAGE 524
RELEASE COMPLETE 522
UPDATE BANDWIDTH USAGE FOR COMMUNITY I AND LINK IJ 530
UPDATE BANDWIDTH USAGE FOR COMMUNITY J AND LINK IJ 526
RELEASE COMPLETE 528
CONTINUE
CONTINUE